

**WEST**

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L10: Entry 1 of 28

File: DWPI

Apr 9, 2001

DERWENT-ACC-NO: 1998-514192

DERWENT-WEEK: 200122

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TITLE: Semipermeable membrane support body for precision ultrafiltration and reverse osmosis - uses non-woven fabric of predetermined permeability and average breaking length in vertical and horizontal directions at specified extension or expansion

INVENTOR: KOUZU, N; MIKI, T ; MIYAGI, A ; SHINOKI, T

PRIORITY-DATA: 1997JP-0042832 (February 13, 1997), 1998WO-JP03594 (August 12, 1998), 1998EP-0937795 (August 12, 1998)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 3153487 B2	April 9, 2001		013	B01D069/10
JP 10225630 A	August 25, 1998		002	B01D069/10
WO 200009246 A1	February 24, 2000	J	000	B01D069/10
EP 1044719 A1	October 18, 2000	E	000	B01D069/10

INT-CL (IPC): B01D 39/16; B01D 69/10; B01D 71/48; B32B 5/26; D21H 13/24

ABSTRACTED-PUB-NO: JP 10225630A

## BASIC-ABSTRACT:

The semipermeable membrane support consists of a non-woven fabric whose permeability ranges between 0.2-10.0 cc/cm<sup>2</sup>sec. The average value of breaking length in the vertical and horizontal directions of the non-woven fabric is set as 4.0 km or more at the time of 5 % extension or expansion. The non-woven fabric is formed by using polyester core fibres as webs and thermobonding property binder fibres whose heat shrinking stress at 200 deg. C is and the double refraction index is 0.170 or more.

USE - In manufacture of hyper pure water for medical washing and semiconductor cleaning from seawater, waste water treatment, in food industry involving hemofiltration of bacteria, virus, yeast.

ADVANTAGE - Demonstrates excellent dimensional stability, surface smoothness and adhesive property with film having high permeability. Eliminates generation of peeling or rupture in semipermeable membrane during high pressure filtration. Forms uniform and flat film without roughness or pin holes. Excels in dynamic characteristics and endurance at low basic weight with long durability. Ensures effective usage for extensive applications.

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L10: Entry 12 of 28

File: DWPI

Jul 4, 1986

DERWENT-ACC-NO: 1986-215152

DERWENT-WEEK: 198633

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TITLE: Semipermeable membrane with support - comprises polysulphone resin on double layer support for improved alkali resistance

PRIORITY-DATA: 1984JP-0266296 (December 19, 1984)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 61146304 A	July 4, 1986		006	
JP 92051210 B	August 18, 1992		006	B01D069/12

INT-CL (IPC): B01D 13/00; B01D 69/12; B01D 71/68

ABSTRACTED-PUB-NO: JP61146304A

## BASIC-ABSTRACT:

Membranes consist of high mol wt. cpd. and support. The high mol wt. cpd. is consecutively lined from one side to the other in the thickness direction. The high mol wt. cpd. is polysulphone resin.

To prepare the triple structure membrane, dope is poured onto the support which is pref. breathable cloth or non-woven cloth, or dope is poured under higher extrusion pressure to let the dope soak through the opposite side of the support. Polyamide and polyester fibre supports usually are damaged by alkali. When these fibres is covered with the semipermeable membrane, the supports are protected from alkali.

ADVANTAGE - The peeling resistance between semipermeable membrane and the support is improved. As the alkali-resistance is improved, even support made of polyamide and polyester can be washed or treated with alkali soln. Heat-resistance is improved compared to ordinary membrane.

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L10: Entry 27 of 28

File: DWPI

DERWENT-ACC-NO: 1971-07631S

DERWENT-WEEK: 197104

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TITLE: Inverse osmosis membrane assembly

PRIORITY-DATA: 1969GB-0035786 (July 16, 1969)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
NL 7010533 A			000	
CA 943448 A	March 12, 1974		000	
DE 2035371 A			000	
DE 2035371 C	July 18, 1985		000	
FR 2051793 A			000	
GB 1325672 A			000	
JP 80043807 B	November 8, 1980		000	
NL 165061 B	October 15, 1980		000	
ZA 7004833 A			000	

INT-CL (IPC): B01D 13/00; B29C 13/00; B29C 27/26; B32B 1/10; B32B 5/18

ABSTRACTED-PUB-NO: NL 7010533A

## BASIC-ABSTRACT:

Porous, fibrous strips are wound helically onto a spindle to form a tube. A semi-permeable membrane is continuously poured onto the inside or outside of the tube. Specifically the tube is wound from two strips, one of which consists of polyester fibre paper.

**WEST**

Generate Collection

L10: Entry 14 of 28

File: DWPI

Apr 27, 1985

DERWENT-ACC-NO: 1985-138916

DERWENT-WEEK: 198523

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TITLE: Pleated semipermeable membrane prodn. - by pleating and heat setting polyester cloth and casting membrane on it

PRIORITY-DATA: 1983JP-0180815 (September 30, 1983)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 60075311 A	April 27, 1985		000	
JP 88045843 B	September 12, 1988		000	

INT-CL (IPC): B01D 13/04

ABSTRACTED-PUB-NO: JP60075311A

## BASIC-ABSTRACT:

In producing a pleat-shaped semi permeable membrane supporting body made of a woven cloth or nonwoven cloth made of polyester fibre and a woven cloth or non woven cloth made of polyamide fibre, prior to casting is treated by heat set process to be pleated and then said semipermeable membrane is cast on the pleated supporting body.

USE/ADVANTAGE - The pleat-shaped semipermeable is esp. suitable for membrane sepn. The pleat-shaped semipermeable membrane has controlled pleat height and is of high quality (small cracks are prevented from being produced at the pleated parts).

**WEST** **Generate Collection**

L10: Entry 25 of 28

File: DWPI

DERWENT-ACC-NO: 1973-62415U

DERWENT-WEEK: 197342

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TITLE: Elastic polyester resin solns with stable viscosity - used in fibre finishings, leather substitutes or  
semipermeable membranes

PRIORITY-DATA: 1971JP-0037246 (May 29, 1971)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 48000943 A			000	
JP 76002943 B	January 30, 1976		000	

INT-CL (IPC): C08J 3/08; C08L 67/00; C09D 3/64; D06M 15/48

ABSTRACTED-PUB-NO: JP48000943A

## BASIC-ABSTRACT:

A block copolymer with arom. polyester segments and polyethylene glycol or polylactone segments was dissolved in a 75-95:5-25 mixt. of dioxane or THF and DMF or AcNMe<sub>2</sub> to give a soln. with stable viscosity. Thus a 3.5:1 poly(ethylene terephthalate)-polytetramethylene glycol block copolymer with mol.wt. of polytetramethylene oxide segments 2000 was dissolved in 9:1 dioxane-AcNMe<sub>2</sub> to 20% solids. The soln. had stable viscosity and stringiness for >10 days, compared with <1 day for a similar soln. in 7:3 dioxane-AcNME2.

**WEST****Generate Collection****Search Results - Record(s) 1 through 18 of 18 returned.**

1. Document ID: US 5037457 A      Relevance Rank: 99

L1: Entry 18 of 18

File: USPT

Aug 6, 1991

US-PAT-NO: 5037457DOCUMENT-IDENTIFIER: US 5037457 A

TITLE: Sterile hydrophobic polytetrafluoroethylene membrane laminate

DATE-ISSUED: August 6, 1991

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Goldsmith; Paul S.	Peabody	MA		
Carey; Claire M.	Framingham	MA		
Keeley; Donald E.	Dunstable	MA		
Goel; Vinay	Acton	MA		

US-CL-CURRENT: 96/12; 156/162, 156/289, 156/309.6, 428/480

## ABSTRACT:

A gamma radiation sterilized membrane laminate is provided comprising a porous polytetrafluoroethylene membrane directly laminated to a porous polyester web substrate. The laminate is hydrophobic and has a burst strength when unsupported of at least 10 psi in both the forward and reverse direction of filtration after the laminate is exposed to radiation.

6 Claims, 0 Drawing figures Exemplary Claim Number: 1

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Claims](#) | [KMC](#) | [Draw Desq](#) | [Image](#) |

2. Document ID: US 5554414 A      Relevance Rank: 99

L1: Entry 12 of 18

File: USPT

Sep 10, 1996

US-PAT-NO: 5554414

DOCUMENT-IDENTIFIER: US 5554414 A

TITLE: Process for forming membrane having a hydrophobic fluoropolymer surface

DATE-ISSUED: September 10, 1996

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Moya; Wilson	Derry	NH		
Goddard; Philip M.	New Ipswich	NH		

US-CL-CURRENT: [427/244](#); [427/245](#), [427/393.5](#), [427/394](#)

## ABSTRACT:

A composite porous article is formed from a porous polymeric substrate having its entire surface modified with a cross-linked polymer which results in a hydrophobic and oleophobic surface. The composite retains substantially all of the other original properties of the substrate. The cross-linked polymer is formed in situ on the polymeric substrate from a reactant system comprising an ethylenically unsaturated monomer having at least one fluoroalkyl group, a cross-linker, and, if needed, a polymerization initiator, dissolved in a polar solvent system. The porous substrate saturated with the reactant system is exposed to a suitable energy source to effect polymerization and cross-linking of the monomer.

23 Claims, 0 Drawing figures Exemplary Claim Number: 1

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#)[Front](#) | [Draw Desc](#) | [Image](#) 3. Document ID: US 5209850 A Relevance Rank: 93

L1: Entry 17 of 18

File: USPT

May 11, 1993

US-PAT-NO: 5209850

DOCUMENT-IDENTIFIER: US 5209850 A

TITLE: Hydrophilic membranes

DATE-ISSUED: May 11, 1993

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Abayasekara; Dilip R.	Newark	DE		
Henn; Robert L.	Wilmington	DE		

US-CL-CURRENT: [210/500.36](#); [264/45.1](#), [264/DIG.48](#), [264/DIG.62](#)

## ABSTRACT:

Normally hydrophobic fluoropolymer porous membranes having continuous pores are rendered hydrophilic by coating the pore interior with a mixture of at least one fluoroaliphatic surfactant and at least one hydrophilic but substantially water-insoluble polyurethane.

7 Claims, 0 Drawing figures Exemplary Claim Number: 1,7

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#)[KMC](#) | [Draw Desc](#) | [Image](#)

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**☒ 4. Document ID: US 5217802 A      Relevance Rank: 93**

L1: Entry 16 of 18

File: USPT

Jun 8, 1993

US-PAT-NO: 5217802

DOCUMENT-IDENTIFIER: US 5217802 A

TITLE: Hydrophobic polymeric membrane composites

DATE-ISSUED: June 8, 1993

## INVENTOR-INFORMATION:

NAME

CITY

STATE

ZIP CODE

COUNTRY

Scarmoutzos, Louis M.

Andover

MA

US-CL-CURRENT: 428/304.4; 428/305.5, 428/306.6, 428/308.4, 521/134, 521/138, 521/53, 521/57

## ABSTRACT:

A composite porous membrane is formed from a porous polymeric substrate having its entire surface modified with a cross-linked polymer which results in a hydrophobic and oleophobic surface. The composite membrane retains substantially all of its other original properties. The cross-linked polymer is formed in situ on the polymeric substrate from a reactant system comprising an ethylenically unsaturated monomer having at least one fluoroalkyl group, a cross-linker, and, if needed, a polymerization initiator, dissolved in a nonpolar and or weakly polar solvent system. The membrane substrate saturated with the reactant system is exposed to a suitable energy source to effect polymerization and cross linking of the monomer.

16 Claims, 1 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 1

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#)[KMC](#) | [Draw Desc](#) | [Image](#)

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**☒ 5. Document ID: US 5279647 A      Relevance Rank: 93**

L1: Entry 15 of 18

File: USPT

Jan 18, 1994

US-PAT-NO: 5279647

DOCUMENT-IDENTIFIER: US 5279647 A

TITLE: Methods and apparatus for degassing a liquid

DATE-ISSUED: January 18, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gatten; Ronald A.	Pleasanton	CA		
Miller; Leslie A.	Milpitas	CA		
McCall, Jr.; Thomas J.	Fremont	CA		
Nau; Vance J.	Cupertino	CA		

US-CL-CURRENT: 96/6; 96/193, 96/219, 96/8

ABSTRACT:

An apparatus for effective vacuum degassing of a liquid is provided for liquid chromatography applications. The liquid to be degassed is heated in the vacuum chamber by a radiator of electromagnetic energy, in one embodiment, or is heated before it enters the vacuum chamber. The liquid may also be agitated while in the vacuum chamber. In a preferred form, the vacuum degassing unit includes a vacuum chamber including a vacuum pump for creating a vacuum therein, a source of liquid, and gas permeable tubing for conducting the liquid through said vacuum chamber. The tubing includes first and second larger diameter blocks having at least one hole therein interconnected by at least one length of small diameter tube to form a leak-tight seal therewith.

10 Claims, 20 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 10

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [MMC](#) | [Draw Desc](#) | [Image](#)

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6. Document ID: US 5286382 A      Relevance Rank: 93

L1: Entry 14 of 18

File: USPT

Feb 15, 1994

US-PAT-NO: 5286382

DOCUMENT-IDENTIFIER: US 5286382 A

TITLE: Hydrophobic polymeric membrane composites

DATE-ISSUED: February 15, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Scarmoutzos; Louis M.	Andover	MA		
Charkoudian; John	Carlisle	MA		

US-CL-CURRENT: 210/490; 210/500.41, 210/500.42, 427/244, 427/245, 427/508, 428/306.6, 428/315.7,  
428/319.7, 521/134, 521/138, 521/53, 521/57

ABSTRACT:

A composite porous membrane is formed from a porous polymeric substrate having its entire surface modified with a cross-linked polymer which results in a hydrophobic and oleophobic surface. The composite membrane retains substantially all of its other original properties. The cross-linked polymer is formed in situ on the polymeric substrate from a reactant system comprising an ethylenically unsaturated monomer having at least one fluoroalkyl group, a cross-linker, and, if needed, a polymerization initiator, dissolved in a nonpolar and or weakly polar solvent system. The membrane substrate saturated with the reactant system is exposed to a suitable energy source to effect polymerization and cross linking of the monomer.

14 Claims, 1 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 1

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [KOMC](#) | [Drawn Base](#) | [Image](#)

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7. Document ID: US 5439587 A      Relevance Rank: 93

L1: Entry 13 of 18

File: USPT

Aug 8, 1995

US-PAT-NO: 5439587

DOCUMENT-IDENTIFIER: US 5439587 A

TITLE: Self priming filter apparatus

DATE-ISSUED: August 8, 1995

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Stankowski; Ralph J.	Westford	MA		
Heath; Michael C.	Chelmsford	MA		
Boucher; Douglas A.	Billerica	MA		

US-CL-CURRENT: 210/321.64; 210/321.75, 210/321.84, 210/346, 210/436, 210/446, 210/455, 210/472, 422/101,  
604/126, 604/406, 96/219, 96/6

## ABSTRACT:

A self-priming filter holder for filtration of intravenous liquids is provided and is formed of one or two housing portions sealed to a core portion. The core portion has one or two ribbed surfaces forming a plurality of flow paths sealed at one end and open at a second end and at least one channel preferably larger than the flow paths. The channel(s) is in fluid communication with the flow paths and an outlet. An inlet is provided to the interior of the housing portion(s) which are sealed from the ribbed surfaces by hydrophilic membranes. The housing portion(s) can be provided with gas vents sealed with hydrophobic membranes. Fluids pass through the flow paths in one direction and through the channel(s) in an opposite direction to remove gas from the flow paths and channels prior to use.

20 Claims, 4 Drawing figures Exemplary Claim Number: 8

Number of Drawing Sheets: 4

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#)[KIMC](#) | [Draw Desc](#) | [Image](#)

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 8. Document ID: US 5728121 A Relevance Rank: 93

L1: Entry 11 of 18

File: USPT

Mar 17, 1998

US-PAT-NO: 5728121  
DOCUMENT-IDENTIFIER: US 5728121 A

TITLE: Surgical grasper devices

DATE-ISSUED: March 17, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bimbo; Frank A.	Peterborough	NH		
Frantzides; Constantine	Brookfield	WI		
Richards; Theresa	Fitchburg	MA		
O'Connor; Paul D.	East Bridgewater	MA		

US-CL-CURRENT: 606/207

ABSTRACT:

The present invention provides a surgical grasper device that comprises a generally elongate housing member having a handle member at a proximal end and first and second grasping arms at a distal end. First and second grasping elements are preferably releasably attached to the first and second grasping arms respectively. The grasping elements are positioned on the arms in an opposed facing relationship to enable grasping a targeted surface such as living tissue between the elements. A gripping material at least partially covers or is otherwise incorporated into the surface of one or both of the grasping elements. The gripping material provides enhanced holding power to the targeted surface relative to the holding power provided by the grasping elements in the absence of the gripping material.

32 Claims, 20 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 5

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [RMC](#) | [Draw Desc](#) | [Image](#)

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9. Document ID: US 5823204 A      Relevance Rank: 93

L1: Entry 10 of 18

File: USPT

Oct 20, 1998

US-PAT-NO: 5823204

DOCUMENT-IDENTIFIER: US 5823204 A

TITLE: Process for crimping and tattooing hair

DATE-ISSUED: October 20, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Todd; Mark D.	Webster	NY	14580	

US-CL-CURRENT: 132/208; 132/206, 132/211

ABSTRACT:

A process for removably applying coloring material to hair comprises contacting a composite fabric material to hair and compressing the hair along with the composite material while heating the hair to a temperature of at least 140 degrees Fahrenheit. The composite fabric material is a laminated structure formed from a fiberglass substrate having polytetrafluoroethylene bonded thereto. The top surface of the polytetrafluoroethylene has a water-soluble coloring material deposited thereon which is brought into contact with the hair. The hair is compressed and heated using a hair crimping device with a first jaw with a female die member is attached thereto and a second jaw with a corresponding male die member is attached thereto.

12 Claims, 15 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 5

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Edit](#) | [Draw Desc](#) | [Image](#)

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10. Document ID: US 5913315 A Relevance Rank: 93

L1: Entry 9 of 18

File: USPT

Jun 22, 1999

US-PAT-NO: 5913315

DOCUMENT-IDENTIFIER: US 5913315 A

TITLE: Hair tattoo apparatus and method

DATE-ISSUED: June 22, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Todd; Mark D.	Webster	NY	14580	

US-CL-CURRENT: 132/208; 132/206, 132/211

ABSTRACT:

In accordance with this invention, there is provided an image transfer sheet to transfer a colored image to hair. The image transfer sheet comprises at least a first gel layer, a color layer, and a second gel layer. The present invention includes a process to use the image transfer sheet. The process entails contacting the sheet to hair and applying sufficient heat and/or pressure to the sheet and hair so the colored image transfers to the hair.

32 Claims, 22 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 6

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) |

[RNMC](#) | [Draw Desc](#) | [Image](#) |

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11. Document ID: US 6030428 A Relevance Rank: 93

L1: Entry 8 of 18

File: USPT

Feb 29, 2000

US-PAT-NO: 6030428

DOCUMENT-IDENTIFIER: US 6030428 A

TITLE: Porous polytetrafluoroethylene membrane, process for producing the same, sheet-form polytetrafluoroethylene molding, and air filter medium

DATE-ISSUED: February 29, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ishino; Toshiaki	Osaka			JPX
Nabata; Norikane	Osaka			JPX
Maeoka; Takuya	Osaka			JPX

US-CL-CURRENT: 55/486; 55/524, 55/528, 96/13

ABSTRACT:

A fine powder of polytetrafluoroethylene is mixed with a liquid lubricant, and the mixture is molded into an unsintered sheet by at least one of an extrusion method and a rolling method. The liquid lubricant is removed from the sheet by at least one of a heating method and an extrusion method. This sheet-form molding is stretched in the machine direction to produce a sheet-form polytetrafluoroethylene molding which, upon analysis with a differential scanning calorimeter, gives a crystal fusion curve having an endothermic peak in the temperature range of 345.+-.5.degree. C. and which has a degree of crystallization of from 0.1 to 0.85 and a specific gravity of 1.4 or lower. The molding is then stretched in the transverse direction to produce a porous polytetrafluoroethylene (PTFE) membrane. The process is effective in producing, with good reproducibility, a useful porous PTFE membrane which has a high collection efficiency and a low pressure loss and is reduced in the leakage of coarse particles.

6 Claims, 2 Drawing figures Exemplary Claim Number: 2

Number of Drawing Sheets: 1

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [PDF](#) | [Draw Desc](#) | [Image](#)

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12. Document ID: US 6048383 A Relevance Rank: 93

L1: Entry 7 of 18

File: USPT

Apr 11, 2000

US-PAT-NO: 6048383

DOCUMENT-IDENTIFIER: US 6048383 A

TITLE: Mass transfer composite membrane for a fuel cell power plant

DATE-ISSUED: April 11, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Breault; Richard D.	North Kingstown	RI		
Fuller; Thomas F.	Glastonbury	CT		
Van Dine; Leslie L.	Manchester	CT		

US-CL-CURRENT: 95/44; 95/45, 95/52, 96/12, 96/5, 96/7

ABSTRACT:

A mass transfer composite membrane for use with a fuel cell power plant includes a transfer medium core between opposed, rigid, porous support sheets. An inlet surface of the composite membrane is positioned in contact with an oxidant inlet stream of a fuel cell power plant, and an opposed exhaust surface of the composite membrane is positioned in contact with an exhaust stream exiting the fuel cell power plant to recover mass such as water from the exhaust stream and transfer it into the oxidant inlet stream entering the fuel cell. The transfer medium core may comprise any of a variety of materials for sorbing a fluid substance consisting of polar molecules such as water molecules from a fluid stream consisting of polar and non-polar molecules. A preferred transfer medium core is an ionomeric membrane such as a water saturated polyfluorosulfonic acid ionomer membrane. The porous support sheets may comprise a reinforcing fiber with a thermoset resin, such as a carbon sheet with a phenolic resin, or a glass fiber with an epoxy resin, wherein the sheets are thermoset into a rigid configuration. The mass transfer composite membrane may be a flat or a mounded layer defining protrusions and depressions. A plurality of the mounded layer membranes may be disposed within a frame in mirror-image association wherein protrusions and depressions formed by the mounds of adjacent membranes contact each other to define serpentine passages for the inlet and exhaust streams.

16 Claims, 7 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 6

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [MMC](#) | [Draw Desc](#) | [Image](#)

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13. Document ID: US 6053178 A Relevance Rank: 93

L1: Entry 6 of 18

File: USPT

Apr 25, 2000

US-PAT-NO: 6053178

DOCUMENT-IDENTIFIER: US 6053178 A

TITLE: Image transfer sheet and wafer and method of making and using

DATE-ISSUED: April 25, 2000

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Todd; Mark D.	Webster	NY	14580	

US-CL-CURRENT: [132/208](#); [132/206](#); [132/211](#); [132/224](#)

## ABSTRACT:

An image transfer sheet for holding a releasable, transferable image includes a substrate comprising release material and one or more transfer layers that are releasable by heat and/or pressure and include a gel and/or a colorant. A method for forming an image transfer sheet holding a releasable, transferable image comprises depositing one or more transfer layers on a substrate comprising release material. The transfer layers are releasable from the substrate by heat and/or pressure and comprise one or more of the group consisting of a gel and/or a colorant. A method for adhering a colored image to a receiver employs an image wafer comprising one or more transfer layers each comprising gel and/or a colorant and having the shape of a transferable color image. The image wafer, which can be disposed on a substrate comprising releasable material, is placed in contact with a receiver. Heat and/or pressure is applied to the wafer, causing it to adhere to the receiver. Receivers on which a color image can be adhered include natural hair on a person's scalp, artificial hair, and articles of clothing.

83 Claims, 22 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 6

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) |[KMC](#) | [Draw Desc](#) | [Image](#) |

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 14. Document ID: US 6073635 A Relevance Rank: 93

L1: Entry 5 of 18

File: USPT

Jun 13, 2000

US-PAT-NO: 6073635

DOCUMENT-IDENTIFIER: US 6073635 A

TITLE: Apparatus for crimping and tattooing hair

DATE-ISSUED: June 13, 2000

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Todd, Mark D.	Webster	NY	14580	

US-CL-CURRENT: 132/221; 132/333, 427/148, 428/42.1, 428/914

## ABSTRACT:

In accordance with this invention, there is provided an image transfer sheet to transfer a colored image to hair. The image transfer sheet comprises at least a first gel layer, a color layer, and a second gel layer. The present invention includes a process to use the image transfer sheet. The process entails contacting the sheet to hair and applying sufficient heat and/or pressure to the sheet and hair so the colored image transfers to the hair.

47 Claims, 22 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 6

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) |[KMC](#) | [Draw Desc](#) | [Image](#) |

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 15. Document ID: US 6110249 A Relevance Rank: 93

L1: Entry 4 of 18

File: USPT

Aug 29, 2000

US-PAT-NO: 6110249

DOCUMENT-IDENTIFIER: US 6110249 A

TITLE: Filter element with membrane and bicomponent substrate

DATE-ISSUED: August 29, 2000

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Medcalf, Bradley Duane	Booneville	MO		
Doehla; James Roy	Shawnee Mission	KS		
Thill; Anthony Joseph	Overland Park	KS		
Nadkarni; Vikas Madhusudan	Pune			INX

US-CL-CURRENT: 55/514; 55/498, 55/524, 55/528, 55/DIG.5, 96/13

## ABSTRACT:

A filter element is adapted to be located in a gas stream. The filter element comprises a substrate having a structure selected from the group consisting of scrimed needled felt, scrimless needled felt, woven fabric and mesh. The substrate comprises at least two different materials. A first one of the materials has a first melting temperature. A second one of the materials has a second melting temperature lower than the first melting temperature. An expanded polytetrafluoroethylene filtering membrane is adapted to be located upstream relative to the substrate in the gas stream and supported by the substrate. The substrate is attached to the filtering membrane by the second material of the substrate melted to engage the membrane and fix the membrane to the substrate.

19 Claims, 19 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Draw	Image
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16. Document ID: US 6126671 A      Relevance Rank: 93

L1: Entry 3 of 18

File: USPT

Oct 3, 2000

US-PAT-NO: 6126671

DOCUMENT-IDENTIFIER: US 6126671 A

TITLE: Grasping devices and articles

DATE-ISSUED: October 3, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Richards; Theresa	Fitchburg	MA		
Bimbo; Frank	Peterborough	NH		

US-CL-CURRENT: 606/190; 2/161.7, 2/161.8, 36/59R, 606/207

ABSTRACT:

Grasping devices and articles exhibit enhanced gripping or holding power to a variety of surfaces, including surfaces that are slippery or otherwise difficult to hold. The invention involves in some aspects the discovery and use of gripping materials that have the unexpected enhanced capability to provide enhanced holding power to a variety of surfaces, including surfaces that are wet, slippery or otherwise potentially difficult to manipulate effectively, or surfaces on which it may be difficult to maintain an effective grip or traction. The gripping material is smooth and has a relative surface area roughness of between about 1.03 and about 10.5.

33 Claims, 21 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 6

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17. Document ID: US 6149702 A      Relevance Rank: 93

L1: Entry 2 of 18

File: USPT

Nov 21, 2000

US-PAT-NO: 6149702

DOCUMENT-IDENTIFIER: US 6149702 A

TITLE: Filtering medium for air filters and process for producing the same

DATE-ISSUED: November 21, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kawano; Eizo	Osaka			JPX
Nabata; Norikane	Osaka			JPX
Maeoka; Takuya	Osaka			JPX

US-CL-CURRENT: 55/497; 55/521, 55/528, 55/DIG.5

ABSTRACT:

A filtering medium for air filters wherein its surface conditions have been improved, whereby the porous PTFE membrane is not damaged even after pleating, thus appropriately meeting needs for clean space in clean rooms. The filtering medium comprises a porous polytetrafluoroethylene membrane (2) and an air-permeable supporting member (1) which are laminated such that at least one of exposed surfaces comprises a surface of the air-permeable supporting member (1) having a maximum frictional resistance of 25 gf or less. This filtering medium can be obtained by, for example, press bonding the air-permeable supporting member (1) to the porous membrane (2) under heating and then pressing the surface of the air-permeable supporting member (1) to a silicone roll (4) for smoothing.

4 Claims, 5 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 1

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[EPOC](#) | [Draw Desc](#) | [Image](#)

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18. Document ID: US 6207251 B1 Relevance Rank: 93

L1: Entry 1 of 18

File: USPT

Mar 27, 2001

US-PAT-NO: 6207251

DOCUMENT-IDENTIFIER: US 6207251 B1

TITLE: Reinforced particle-loaded fibrillated PTFE web

DATE-ISSUED: March 27, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Balsimo; William V.	Afton	MN		
White; Lloyd R.	Minneapolis	MN		

US-CL-CURRENT: 428/138

ABSTRACT:

A composite article including a particle-loaded fibrillated polytetrafluoroethylene web with a reinforcing screen or scrim partially embedded therein.

5 Claims, 8 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 4

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DWPI	14 and 16	28	<u>L10</u>
USPT	12 and 18	0	<u>L9</u>
USPT	17 and 15	337	<u>L8</u>
USPT	(semipermeable or semi-permeable) same membrane	7500	<u>L7</u>
DWPI	(semipermeable or semi-permeable) same membrane	4457	<u>L6</u>
USPT	polyester same (fiber or fibre)	42822	<u>L5</u>
DWPI	polyester same (fiber or fibre)	40958	<u>L4</u>
DWPI	support member same (nonwoven or unwoven) same fabric	9	<u>L3</u>
USPT	support member same (nonwoven or unwoven) same fabric	99	<u>L2</u>
USPT	5037457	18	<u>L1</u>

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L10: Entry 4 of 28

File: DWPI

Apr 5, 1999

DERWENT-ACC-NO: 1992-280147

DERWENT-WEEK: 199919

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TITLE: Reinforced semipermeable membrane for liq.-liq. or liq.-solid sepn. - obtd. from a dope soln. contg. 1-4C alcohol, aprotic polar solvent and saponified ethylene@!-vinyl! acetate copolymer

PRIORITY-DATA: 1990JP-0323829 (November 26, 1990)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 2878447 B2	April 5, 1999		004	B01D071/26
JP 04190836 A	July 9, 1992		004	B01D071/26

INT-CL (IPC): B01D 69/10; B01D 71/26; B01D 71/38

ABSTRACTED-PUB-NO: JP04190836A

## BASIC-ABSTRACT:

Semipermeable membrane comprises a sponge layer having a skin layer. A reinforcing porous sheet is embedded in the sponge layer. The membrane is prep'd. from a dope soln. which contains water, 1-4C alcohol or aprotic polar-solvent, and saponified ethylene-vinylacetate copolymer.

The 1-4C alcohol includes MeOH, EtOH, isopropanol, sec- or tert-butanol, ethylene glycol, propylene glycol, or glycerol. The aprotic polar solvent includes N,N-dimethylacetamide, N,N-diethylformamide, N-methyl-2-pyrolidone, dimethylsulphoxide, acetone, THF, or dioxane. The reinforced porous sheet is a polyester, polypropylene, polyethylene, or polyamide fibre sheet 50-200 mesh made of 30-200 micron dia. monofilaments. In an example, a membrane 210 micron thick was prep'd. by impregnating a dope soln. in a polyester fibre cloth; then immersing the cloth in water.

USE-ADVANTAGE - To separate liq. or solid from soln. The membrane can be back-washed without any dam

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14 and 16

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USPT	17 and 15	337	<u>L8</u>
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USPT	polyester same (fiber or fibre)	42822	<u>L5</u>
DWPI	polyester same (fiber or fibre)	40958	<u>L4</u>
DWPI	support member same (nonwoven or unwoven) same fabric	9	<u>L3</u>
USPT	support member same (nonwoven or unwoven) same fabric	99	<u>L2</u>
USPT	5037457	18	<u>L1</u>